

stitute for the idea of a single Creator, orders of angelic beings, each charged with the task of originating and exercising supervision and control over special evolutionary processes! Everyone must feel how incongruous are such incursions into the realms of the unknown and the unknowable with the really valuable and suggestive discussions of the first part of the book. But however much we may regret the intrusion by the author of these wild speculations, and greatly as we may dissent from his social and political panaceas, as hopelessly impracticable, we all recognise that they are inspired by the author's love of humanity and all living things, by a desire to ameliorate the sorrows and sufferings he sees around him, and by a hope—ill-founded though it may be—that such teachings may be of service to his fellow-men.

NATIVES OF THE ARGENTINE REPUBLIC.

Los Aborígenes de la República Argentina. Manual adaptado á los programas de las Escuelas Primarias, Colegios Nacionales y Escuelas Normales. By Prof. F. F. Outes and Prof. C. Bruch. Pp. 149. (Buenos Aires: Angel Estrada y Cia., 1910.)

THIS neat little book, well printed and illustrated, far surpasses its modest subtitle: a manual adapted to the teaching in primary and secondary schools. It is really a condensed account of what is known of the natives of the Argentine Republic, of those who are quite prehistoric, those who were found at the time of the conquest by the Spaniards, and those who "still survive precariously in some far-off districts."

A rapid survey of the earth's history as told by the sedimentary strata and their leading fossils is made the occasion for explaining the meaning of the many indispensable technical terms. Since much of the evidence of the existence of prehistoric man rests upon his primitive implements, the theory of artificially chipped stones is explained and illustrated, and how, at least in Europe, the evolution through polished and carved implements of stone to those of metal can be traced. A roll-call of scientific work in Argentina, from Pigafetta, Magellan's companion in 1520, to the Princeton University expedition, concludes this introduction of twenty-eight pages.

The palæontological account is greatly helped by a coloured diagram. Besides the mystical Tetrarprothomo, the pliocene Monte hermoso level has yielded pieces of rock which enthusiasts have taken for examples of intentionally fire-baked clay, whilst others refer their condition to volcanic action. In short, the earliest undoubted human remains and traces date from the Enseñada Loess, lowest pleistocene. The *Homo pampeanus*, of the early American type, seems to have used the carapace of the contemporary Glyptodonts for shelter. Post-pampean man was clearly neolithic, and he continued in this state until his discovery by the Spaniards, with the sole exception of the Diaquita in the north-western mountains, which had advanced to the use of bronze. These interesting people are described in the second chapter.

To facilitate the account of the various tribes, each chapter has a little map, and stress is laid upon the

prevailing climate, as influencing man through the fauna and flora. Each chapter begins with a description of the physical aspect of the respective district, whether forest, mountain, or plain, with frequent photographs; the tribes are grouped as much as possible according to their relationship. Each group, or tribe, or race, is tersely characterised physically; as a linguistic point the personal pronouns have been selected. Sociologically: the kind of food and how it is prepared, especial attention being paid to the mode of kindling of fire. Then follow the kind of shelter, dress, ornamentation, dances, creeds, and superstitions, family and funeral rites, weapons, and wars. To each chapter is attached a carefully selected and apparently well-nigh exhaustive bibliography, and 146 illustrations, comprising maps, scenery, implements, pictographs, and portraits enhance the text, which in a small compass manages to impart an astonishing amount of information.

OUR BOOK SHELF.

Solectrics: a Theory Explaining the Causes of Tempests, Seismic and Volcanic Disturbances, and how to Calculate their Time and Place. By Alfred J. Cooper. Pp. iv+100; illustrated by over 100 diagrams. (London: J. D. Potter, 1910.) Price 10s.

THE "solectric theory" postulates a force which in some sense corresponds to the sun's radiant energy, giving rise to light, heat, chemical action, and magnetism, but the author also inserts gravity and vital force. Having introduced such a force, the author is able to explain the rotation of the earth, the obliquity of the ecliptic, and many other things. This solectric energy penetrates the whole solar system, and there is a constant adjustment of this force according to the configuration of the planets and moon. The sum is constant, the whole passing continually from and to the sun; only local disturbances have to be considered. At intervals the earth becomes charged with solectric energy, both directly from the sun and indirectly from the planets and moon. According to the length of time that the earth is submitted to this force, so its manifestation will vary. If the accumulated energy is spread over a large flat country or an ocean, a storm occurs; if the energy has been gathering for ten or twelve days, and is concentrated in a mountainous district, an earthquake takes place; if the earth has been surcharged for a month or more, volcanic eruptions follow. But whatever the form of the disturbance, it is necessary that the sun or moon should be $57\frac{1}{2}^{\circ}$ or 88° from the position affected at the critical moment.

If we have correctly interpreted the author, this expression means that the place must lie on a circle $57\frac{1}{2}^{\circ}$ or 88° from the position in which the sun or moon is vertical. We have not been able to follow the process by which the position on either of these circles is definitely located, but evidently the operation is not a simple one, for the author intimates that a body of expert calculators will be required in order to apply the theory. But if the instructions are pursued rigorously, it will be possible to issue warnings to any state threatened by an earthquake, or to ships likely to be overtaken by a tempest.

Differing from many theories, the aim here is eminently practical, but if the author entertains any hope that it will be tested, we are afraid he is doomed to disappointment. Though we cannot agree with his conclusions, we should wish to treat Capt. Cooper

with great respect. He has witnessed many storms and startling phenomena in all parts of the world, and has sought to ascertain the causes according to his lights. Not being sufficiently acquainted with phenomena outside his own experience, and perhaps misled by the "long arm of coincidence," he has gone wrong, but the spirit of inquiry exhibited is very creditable, and much to be preferred to the display of indifference so often manifested by seamen and others.

Die Cnidosporidien (Myxosporidien, Actinomyxidien, Microsporidien). Eine monographische Studie. By Dr. M. Auerbach. Pp. viii+261. (Leipzig: Verlag von Dr. Werner Klinkhardt, 1910.) Price 18 marks.

THIS memoir deals with an important group of parasitic Protozoa, associated with disease in cold-blooded vertebrates, especially fishes, and in invertebrates, for instance, pébrine in silkworms. The spores of these Sporozoa are enclosed in a valvate shell (the valves of which are shown to arise from two or three special cells in the sporoblast), which contains, besides one or more masses of spore-plasm, one to four polar capsules, each with a spirally-wound filament. The assertions of some workers that the polar filaments can be extruded and subsequently retracted are not borne out by the author's experience. The morphology of the vegetative forms and spores and the multiplicative and propagative reproduction are fully described; some form of sexual reproduction is now known to occur in members of each of the three subdivisions of the Cnidosporidia.

In the biological portion of the work the occurrence of the parasites is discussed, and an excellent host-index is given showing the Cnidosporidia recorded from each, with references to the records; the situation of the parasite and its pathological effects are described. In the systematic section an account is given of the genera and species described subsequent to 1897, which thus serves as a supplement to Labbé's account in "Das Tierreich" (1899). There are useful hints on technique, a list of 530 memoirs dealing with this group of parasites up to August, 1909, and an appendix giving a summary of the literature issued between that date and the time of printing. A comprehensive index completes this admirably arranged and useful monograph, which is illustrated with eighty-three half-tone figures.

Lehrbuch der Botanik für höhere Lehranstalten und die Hand des Lehrers, sowie für alle Freunde der Natur. By Prof. O. Schmeil. (Sechszwanzigste Auflage.) Pp. xvi+534. (Leipzig: Quelle and Meyer, 1910.) Price 5.40 marks.

THE author of a book that passes through twenty-five editions in seven years has reason to be satisfied. Such is the record of Dr. Schmeil's "Text-book of Botany," which is intended for use in high schools and similar institutions, as well as for teachers and home students. It is largely a systematic compilation treating of phanerogams, with a shorter review of cryptogamic types; to this is added an account of general morphology and physiology, and a brief appendix on plant systems and geographical distribution. The success of the book may be attributed to the training value of systematic botany in a general course of education. The information proceeds by families, for which one or more of the important members is taken for tolerably full description, especially with regard to features of biological interest, while others, particularly those of economic interest, are mentioned, and in many cases figured. Among the numerous illustrations those portraying

general habit and appearance are a notable feature. Most of the coloured plates refer to an individual species, but one is a representation of a wood in the carboniferous epoch. It would be useful if general characters were given for each family mentioned; as it is, they are omitted in those cases where they are not readily obtainable.

Four-Figure Logarithms on a New Graphic System, dispensing with Interpolations. By Dr. R. C. Farmer and M. M. Farmer. Pp. 8. (London: Longmans and Co., 1910.) Price 6d. net.

THE authors of these tables have attempted to avoid the necessity of employing difference columns. With this end in view, numbers are printed on one side of a graduated line, drawn down the page, and the corresponding logarithms are placed opposite to them. The difference between successive printed numbers is 10 and the intermediate spaces are divided into ten parts. The logarithms are also printed at intervals of ten, and the correct subdivisions are indicated. It is claimed that more accurate readings will be made in this way than from the ordinary tables where a slight error in the fourth place occasionally occurs. But we must confess that we have found this new method a considerable strain on the eyesight, and there is the additional inconvenience of having three pages to consult instead of one. For practical purposes, ordinary tables give a sufficient degree of accuracy; we therefore doubt whether this new graphic system, in itself distinctly ingenious, will receive much support.

Die Abstammungslehre. By Dr. P. G. Buekers. Pp. xi+354. (Leipzig: Quelle and Meyer, 1909.) Price 4.40 marks.

THIS is a very good little book. It presents the main facts bearing on the theory of descent, which have been ascertained of recent years, within a convenient compass. The account of variability is very useful, but what will probably be found of greatest use to German readers will be the author's epitome of the mutation theory and his account of elementary species in *Draba* and *Viola*, of which there are some very useful figures. His chapter on the natural system of classification is very interestingly written; he deals at length and is evidently very much interested in the question of the minute discrimination rendered possible by a long training of the observation, and he mentions a bulb dealer who knows more than a thousand varieties of hyacinths from the dry bulbs alone. His concluding chapter embodies an attempt to hold the scales between the mutation theory and the theory of the selection of continuous variations. The author makes an unequivocal declaration in favour of the theory of mutation; his thoughtful analysis of the evidence on this question should ensure the book a wide circulation. It is to be hoped that it may be translated into English.

The Cornish Riviera. Described by Sidney Heath. Pp. 64. *The Peak District.* Described by R. M. Gilchrist. Pp. 64. *Dickens Land.* Described by J. A. Nicklin. Pp. 64. All pictured by Ernest Haslehurst. (London: Blackie and Son, Ltd., 1911.) Price 2s. net.

THESE additions to the "Beautiful England" series which Messrs. Blackie are publishing contain all the attractive features to which attention has been directed in noticing previous volumes. Mr. Haslehurst's beautiful pictures in colour, supplemented as they are by bright, entertaining letterpress, should assure the popularity of the volumes.